

What is claimed is:

1. A medium for retention of chemical species for use in a hand-held device for the relatively rapid detection of the presence of an analyte of interest in a sample, wherein the medium is comprised of a porous, absorbent polymeric material.
2. The medium of claim 1, wherein the polymeric material has a density of from about 0.05 g/cc to about 0.1 g/cc, an average pore size of from about 0.2 mm to about 1mm, a pore size range of from about 0.004 to about 1.2 mm, and an absorptive capacity of from about 5 g water/g of polymeric material to about 15 g water/g or polymeric material.
3. The medium of claim 1, wherein the polymeric material is selected from the group consisting of polyvinyl alcohol and polyvinyl acetal.
4. The medium of claim 1, wherein the medium functions as a swab for the sampling of the analyte of interest on a solid surface.
5. The medium of claim 3, wherein the polymeric material has a density of approximately 0.1 g/cc, an average pore size of 0.2 mm, a pore size range of about 0.004 to about 0.4 mm, and an absorptive capacity of about 7 to about 10 g water/g of polymeric material.
6. The medium of claim 3, wherein the medium is in a cylindrical shape.
7. The swab of claim 6, wherein the height of the cylindrical swab is less than the diameter of the swab.
8. The medium of claim 3, wherein at least a portion of a surface of the medium is covered with an effective amount of an adhesive substance.

9. The medium of claim 1, wherein the medium functions as a reagent disc for loading of a reactant system.

10. The medium of claim 9, wherein the polymeric material has a density of about 0.05 g/cc; an average pore size of from 0.9 to 1 mm; a pore size range of about 0.2 mm to about 1.2 mm; and an absorptive capacity of approximately 15 g of water/g of polymeric material.

11. The medium of claim 9, wherein the reactant system is loaded onto the reactant disc by contacting a solution of the reactant system in an appropriate solvent onto the polymeric material of which the disc is comprised and removing the solvent from the polymeric material.

12. The medium of claim 11, wherein the solvent is removed from the polymeric material by a method selected from the group consisting of evaporation, sublimation, freeze-drying or lyophilization.

13. The medium of claim 9, wherein the reactant system is capable of undergoing a reaction with adenosine triphosphate (ATP) to generate chemiluminescence as a product of the reaction.

14. The medium of claim 9, wherein the reactant system comprises a luciferase/luciferin system.

15. The medium of claim 14, wherein the reactant system further comprises trehalose in an amount effective to increase the luminescence emission by a factor of from about 25 to about 100%.

16. The medium of claim 14, wherein the reactant system comprises trehalose in an amount effective to increase the luminescence emission by more than 100%.